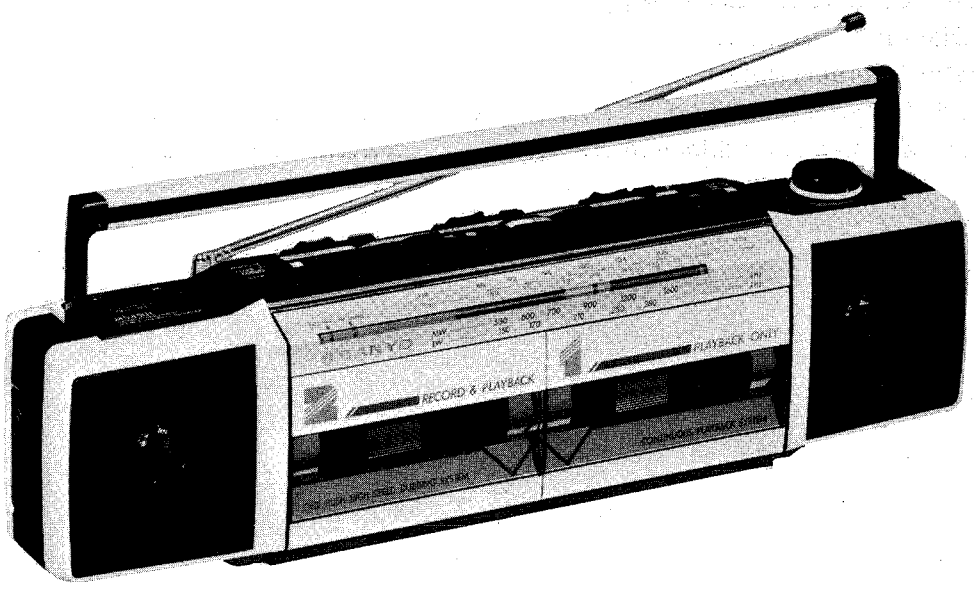
SERVICE MANUAL

SANYO

STEREO RADIO CASSETTE RECORDER

MS450L

EUROPE



142 448 14

SPECIFICATIONS

Power Source	
DC	9V
(UM-3, HP 7, AA Cell, Mignonzelle, R6 x 6)	
Output Power	2.2W x 2 (Max.)
Current Consumption (at Vol. min.)	
Record mode	190mA
Playback mode	150mA
Fast Forward mode	120mA
Rewind mode	120mA
Recording System	AC Bias
Erasing System	AC Erasing
Tape Speed	1-7/8ips. ±3%
Fast Forward Time	120 sec. (with C-60)
Rewind Time	120 sec. (with C-60)
Torque	
Playback	30 ~ 55g-cm
Fast Forward	more than 55g-cm
Rewind	more than 55g-cm

Wow & Flutter	0.1% RMS
Frequency Response (Overall)	40 ~ 13,000Hz
Erase Ratio (Overall)	60dB
Signal to Noise Ratio	40dB
Crosstalk	
Track to Track	50dB
Channel Separation	30dB
Terminal Impedance	
MIC.	0.3mV/3.3kΩ
Headphones	32Ω
Frequency Range	
LW	150 ~ 280kHz
MW	525 ~ 1,605kHz
SW	6 ~ 18MHz
FM	87.5 ~ 108MHz

–Specifications subject to change without notice.–

WM-17610

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DISASSEMBLY INSTRUCTIONS

GENERAL REMARKS

‡ Before disassembling the unit, spread a soft cloth or rubber mat on the work bench to avoid scratches and grease spots.

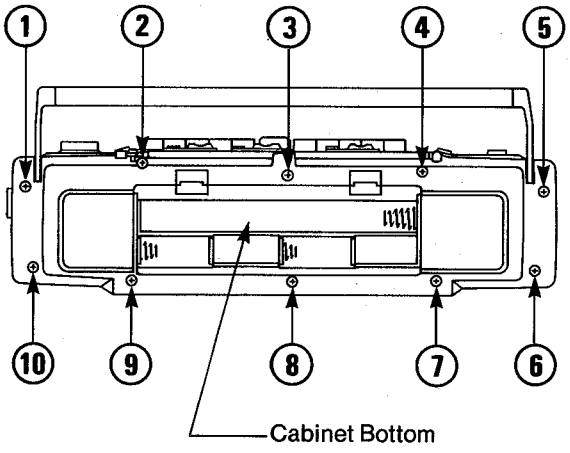
‡ As static electricity is likely to damage transistors and ICs, spread a cloth of the like which does not cause static electricity.

‡ Reassemble the unit correctly noting the kinds of fastening screws and leads. Please refer to the circuit diagrams and exploded views.

CABINET BOTTOM REMOVAL

1. Open the cassette compartment lid by pressing the STOP/EJECT button and take out the cassette tape from the compartment.

2. Remove the battery compartment lid and take out the six batteries from the compartment. Then, remove the ten screws (1 ~ 10) securing the cabinet bottom. (2 and 4 are short screws.)

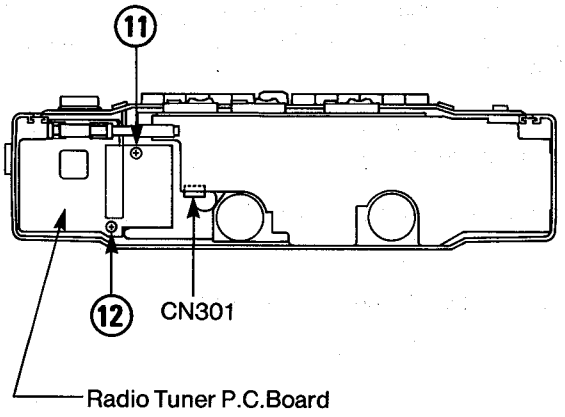


3. Detach the cabinet bottom by lifting it. Disconnect the antenna connector from the Radio Tuner P.C.Board and three connectors from battery terminal.

RADIO TUNER P.C.BOARD REMOVAL

1. Removing the cabinet bottom, turn the tuning knob to the end in any direction.

2. Remove the screws (11 and 12) of the Radio Tuner P.C.Board and the connector (CN301) from the Radio Tuner P.C.Board.



3. Use a little force in removing the Radio Tuner P.C.Board, as the shaft of the variable condenser bites the drum.

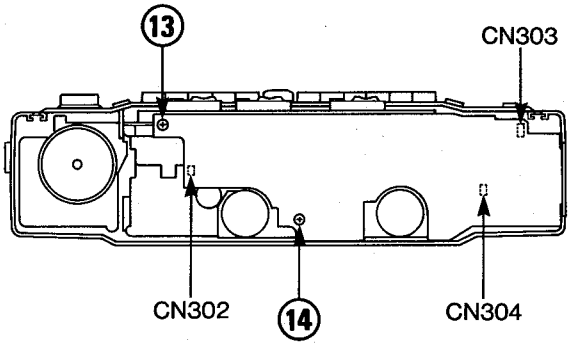
   Note: Do not turn the tuning knob before the Radio Tuner P.C.Board is mounted.
   When the Radio Tuner P.C.Board is mounted, insert the shaft of the variable capacitor into the hole onto the drum and check that the correct indications of the tuning dial are obtained.

AMPLIFIER P.C.BOARD REMOVAL

1. After the removal of the Radio Tuner P.C.Board, remove the two screws (13 and 14) of Amplifier P.C.Board.

2. Unsolder the lead wires soldered on the back side of the Amplifier P.C.Board, and lift up the P.C.Board.

3. Remove the three connectors (CN302 ~ CN304) of the Amplifier P.C.Board and disassemble it.



DISASSEMBLY INSTRUCTIONS(Continued)

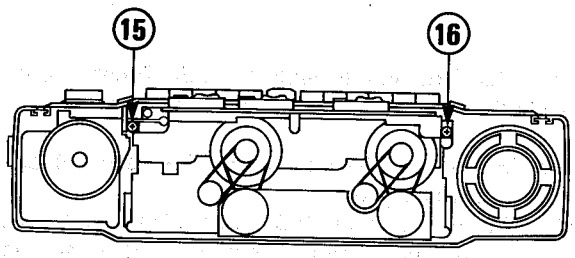
MECHANISM CHASSIS REMOVAL

1. After disassembling the Amplifier P.C.Board, open the cassette compartment lid by pressing the STOP/EJECT button.

2. Remove the lid from the cabinet top by forcibly pushing both sides of the cassette lid.

3. After removing the two lid from the cabinet top, remove the two screws (15 and 16) of the Mechanism Chassis.

4. Disassemble the Mechanism Chassis.



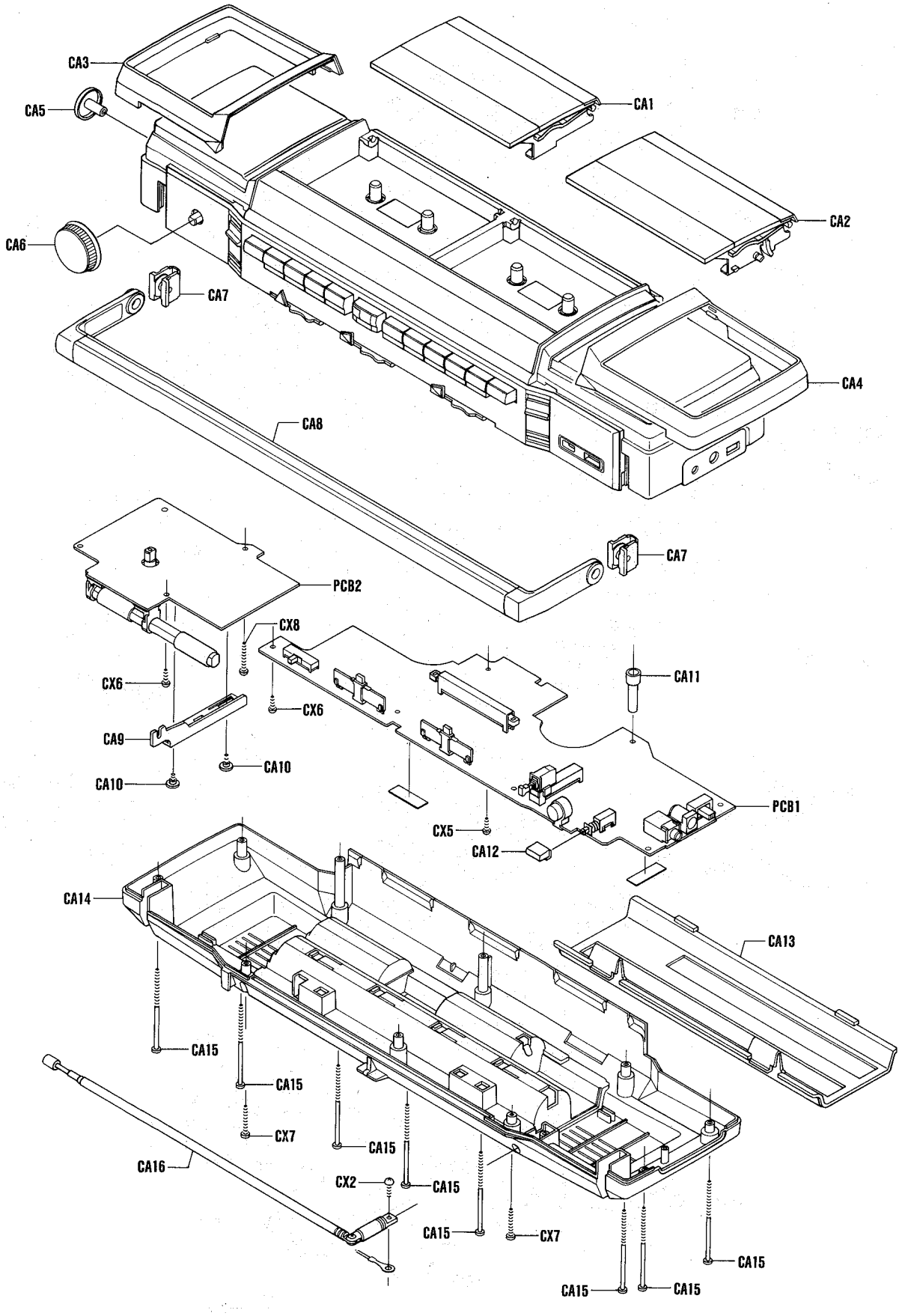
NOTES ON REASSEMBLY

1. Re-connect the leads, referring to the wiring diagram.

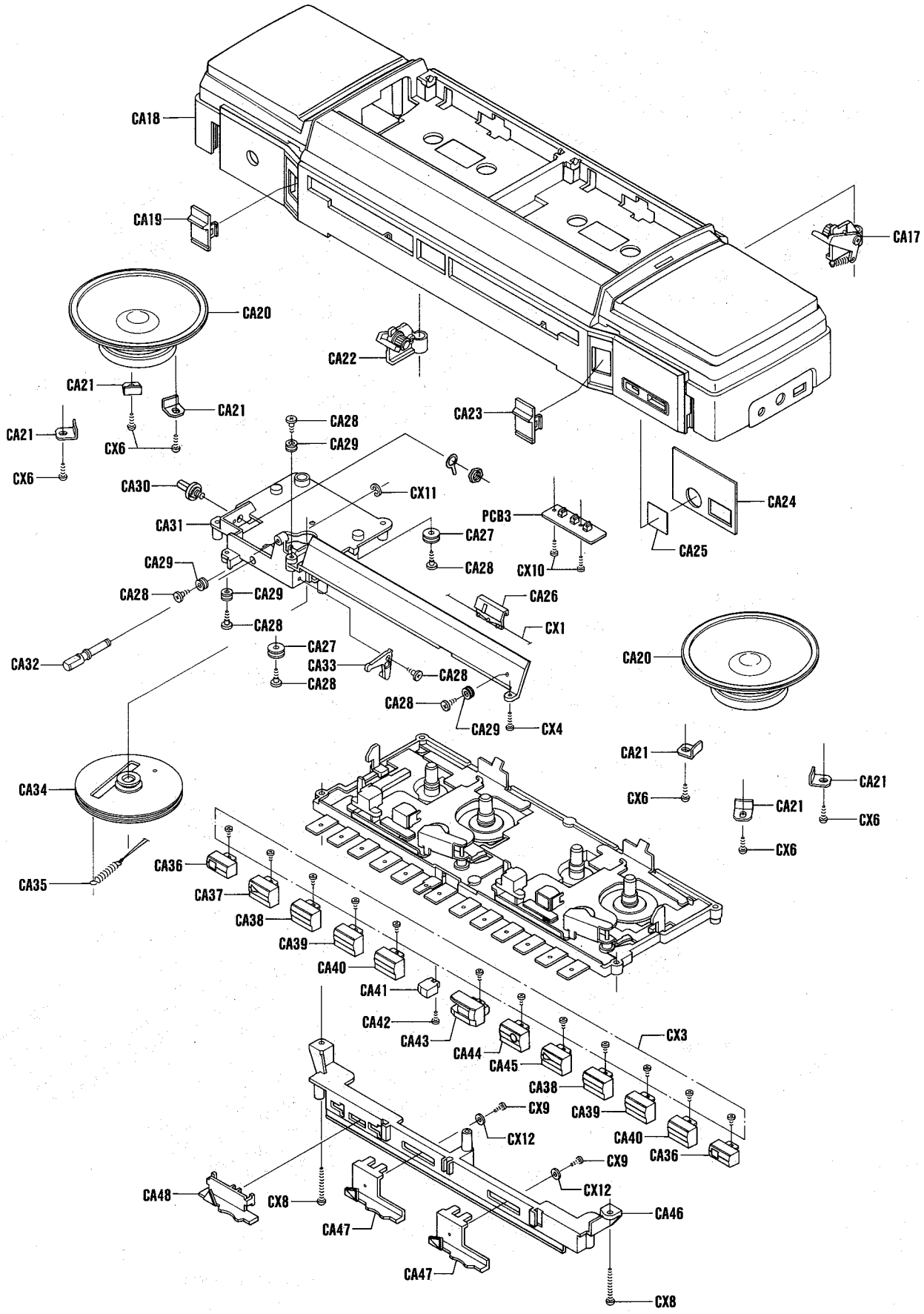
2. Be sure to re-arrange the leads with the clamps. Refer to the exploded views for the arrangement.

3. After the reassembly, the leads and the electrical components should not touch the mechanism parts which move.

CABINET EXPLODED VIEW



CABINET EXPLODED VIEW (Continued)



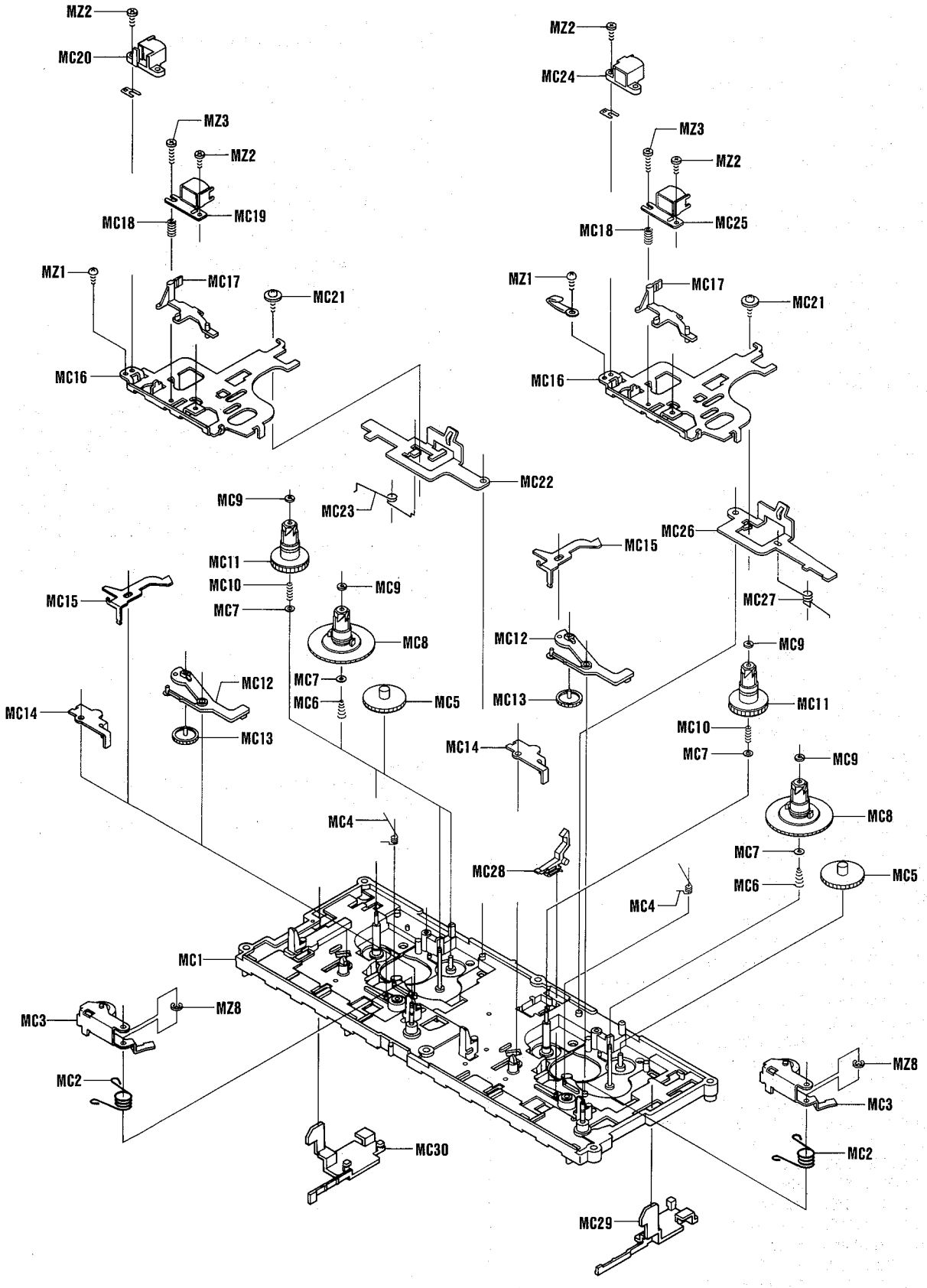
CABINET PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	PACKAGE		
	141-6-1189-16107	Export Carton	1
	141-2-1719-20300	Handle	1
	141-6-1419-88103	Individual Carton	1
	141-6-1469-13300	Case Styrofoam Left	1
	141-6-1469-13200	Case Styrofoam Right	1
	141-6-2519-15290	Poly Cover	1
	141-6-2519-23033	Poly Cover 230 x 330	1
	141-6-3119-19300	Reinforce Handle	1
	141-6-4559-00100	Serial No. Sheet	3
	141-6-4559-03952	Label Color W	2
	ACCESSORIES		
	4-1919-71590	AC Adaptor	1
	4-2419-72222	Cassette	1
	141-6-4319-03956	Label Window POP	1
	141-6-4729-37373	Notice	1
	142-6-4119-33026	Instruction Manual	1
	CABINET		
	4-2359-78874	Conector 1P Assy	1
	4-2359-78875	Conector 1P Assy	1
	4-2359-79071	Connector 2P Assy	1
	4-2359-79426	Connector 1P Assy [CN905]	1
	4-2359-79427	Connector 1P Assy [CN906]	1
	4-2359-79511	Connector 3P Assy [CN904]	1
	141-2-2899-20700	Adheasive Sheet	2
	141-2-4419-24500	Sheet	4
	141-2-4469-17201	Cushion	1
	141-2-4469-34602	Cushion	2
	141-2-4729-07100	Wire Band	1
CA1	141-0-1249-39506	Lid Cassette A Assy	1
CA2	141-0-1249-39606	P Lid Cassette B Assy	1
CA3	141-2-1559-11406	Grill Speaker Right	1
CA4	141-2-1559-11306	Grill Speaker Left	1
CA5	141-2-1639-56208	Knob Rotary	1
CA6	141-2-1639-58011	Knob Tuning	1
CA7	141-2-2719-18500	Holder Handle	2
CA8	141-0-1719-11906	Handle Assy	1
CA9	141-2-7319-76200	Plate Band Select	1
CA10	141-2-4219-29700	Screw	2
CA11	141-2-3529-49700	Spacer PCB	1
CA12	141-2-1659-51800	Knob Push	1
CA13	141-2-1339-37806	Lid Battery	1
CA14	141-0-1129-18815	Cabinet Bottom Assy	1
CA15	141-2-4219-12403	Screw, Pan Hd. Tapping, −M3.0x55	8
CA16	4-2449-70464	Rod Antenna	1
CA17	141-0-7419-43500	Bracket Eject Left Assy	1
CA18	141-0-1129-19509	Cabinet Top Compl	1
CA19	141-2-1649-41703	Knob Mode A	1
CA20	4-1519-72530	Speaker	2
CA21	141-2-3729-05100	Bracket Speaker	6
CA22	141-0-7419-43400	Bracket Eject Right Assy	1
CA23	141-2-1649-41603	Knob Mode	1
CA24	141-2-2899-56200	Sheet	1
CA25	141-2-2899-56300	Sheet	1
CA26	141-2-5119-13701	Pointer	1
CA27	141-2-5519-03300	Roller Dial A	2
CA28	141-2-4219-14000	Screw	7
CA29	141-2-8259-04700	Roller Dial	4
CA30	4-2249-70560	Fine Tuner [FT1]	1
CA31	141-0-3119-26700	Chassis Radio Assy	1
CA32	141-2-7519-35500	Shaft Tuning	1
CA33	141-2-7429-01500	Lever Band Select	1
CA34	141-2-5389-06100	Drum	1
CA35	141-2-8519-78000	Spring Stop	1
CA36	141-2-1659-62505	Button Stop	2
CA37	141-2-1659-62405	Button Play	1
CA38	141-2-1659-62605	Button Rewind	2
CA39	141-2-1659-62705	Button F.FWD	2
CA40	141-2-1659-62805	Button Pause	2
CA41	141-2-1659-62900	Button Speed	1
CA42	141-2-4219-36500	Screw, M2.0X3.0	1
CA43	141-0-1619-35905	Button Dubbing Assy	1
CA44	141-2-1659-62305	Button Record	1
CA45	141-2-1659-66705	Button Play B	1
CA46	141-2-2629-08803	Bracket Knob	1
CA47	141-2-1649-41503	Knob Volume	2
CA48	141-2-1649-41403	Knob Function	1
CX1	624-3-0904-00000	String, ϕ0.4	1
CX2	103-3-1303-01011	Screw, Pan Hd. Tapping-2, +M3.0x10	1
CX3	103-3-1702-00511	Screw, Bind Hd. Tapping-2, +M2.0x5	12
CX4	103-3-1702-00811	Screw, Bind Hd. Tapping-2, +M2.0x8	1
CX5	143-3-1302-60811	Screw, Pan Hd. Tapping-B, +M2.6x8	1
CX6	143-3-1303-00811	Screw, Pan Hd. Tapping-B, +M3.0x8	8
CX7	143-3-1303-01813	Screw, Pan Hd. Tapping-B, +M3.0x18	2
CX8	143-3-1303-02011	Screw, Pan Hd. Tapping-B, +M3.0x20	3
CX9	143-3-1702-00411	Screw, Bind Hd. Tapping-B, +M2.0x4	2
CX10	143-3-1702-00611	Screw, Bind Hd. Tapping-B, +M2.0x6	2
CX11	112-3-1303-00040	E Ring, M3.0	1
CX12	110-3-9200-70054	Nylon Washer, M2.0x7.0x0.5	2
PCB1	141-0-1939-13212	Amplifier P.C.B. Assy	1
PCB2	141-0-1939-16081	Radio Tuner P.C.B. Assy	1
PCB3	141-0-1939-16051	LED P.C.B. Assy	1

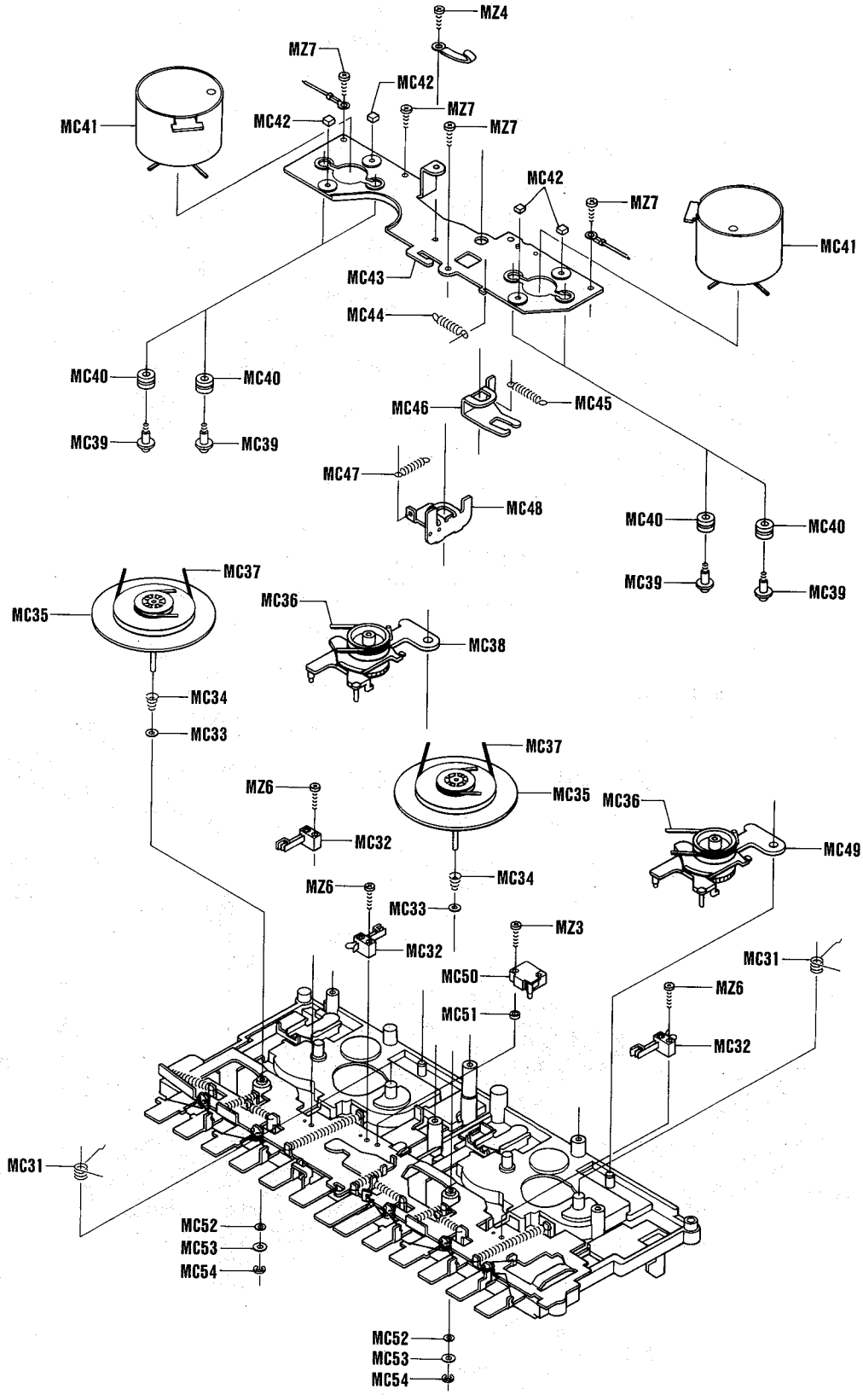
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

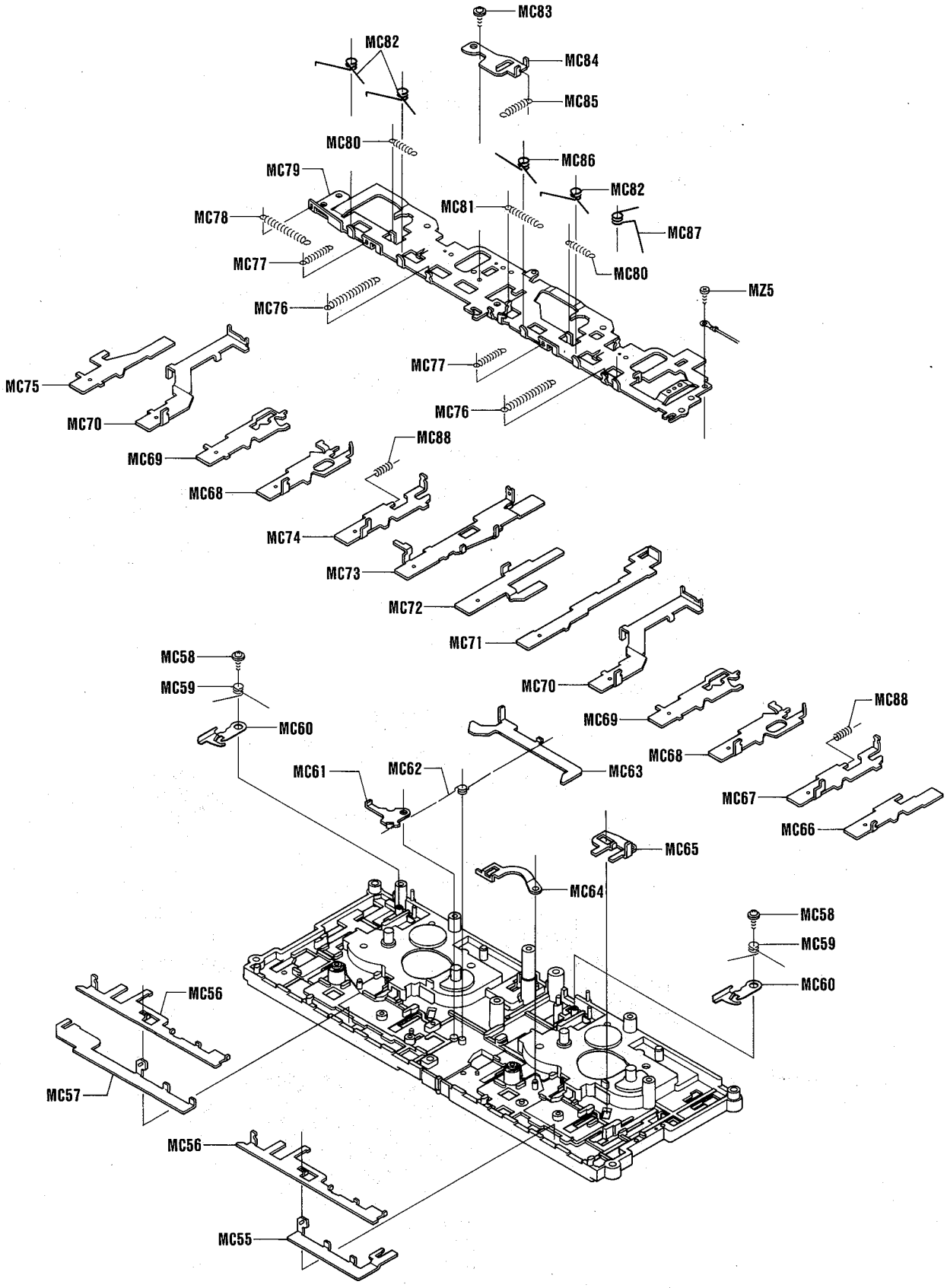
MECHANISM EXPLODED VIEW



MECHANISM EXPLODED VIEW(Continued)



MECHANISM EXPLODED VIEW (Continued)



MECHANISM PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	MECHANISM		
	4-2359-79425	Connector 1P Assy [CN901]	1
	4-2359-79428	Connector 1P Assy [CN907]	1
	141-2-3529-18100	Spacer Head	2
	141-2-4729-01902	Lug	1
	141-2-4729-04000	Lug	1
	141-2-4729-04100	Lug	1
C901	CD4-7-6160-0002V	Electrolytic 47μF 16V	1
L901	4-2539-71360	Choke Coil (33μH)	1
MC1	141-0-3119-26301	Chassis Assy	1
MC2	141-2-8529-30300	Spring Pinch Roller	2
MC3	141-0-5419-03201	Pinchroller Assy	2
MC4	141-2-8529-32400	Spring Take-up	2
MC5	141-2-5519-65400	Gear F.FWD	2
MC6	141-2-8559-15200	Spring Reel	2
MC7	141-2-4539-27601	Washer	4
MC8	141-0-5319-09500	Fix Take-up Assy	2
MC9	141-2-4539-15700	Washer	4
MC10	141-2-8559-15400	Spring Supply	2
MC11	141-2-5319-17400	Fix Supply Reel	2
MC12	141-2-7439-49200	Arm Take-up	2
MC13	141-2-5519-65200	Gear Take-up	2
MC14	141-2-7429-00300	Lever Cue Review	2
MC15	141-2-7429-00200	Lever ASO	2
MC16	141-2-7319-75300	Base Slide	2
MC17	141-2-7419-98500	Lever Sensor ASO	2
MC18	141-2-8559-14900	Spring Head	2
MC19	4-2429-72990	Play Head [HD1]	1
MC20	141-2-8219-36700	Guide Tape	1
MC21	141-2-4219-05400	Screw, w/Washer	2
MC22	141-2-7419-99700	Lever Cassette Fix Left	1
MC23	141-2-8529-30700	Spring Cassette Lock Left	1
MC24	4-2429-73000	Erase Head [HD3]	1
MC25	4-2429-72980	R/P Head [HD2]	1
MC26	141-2-7419-99800	Lever Cassette Fix Right	1
MC27	141-2-8529-30600	Spring Cassette Lock Right	1
MC28	141-2-8419-11700	Interlock Lever	1
MC29	141-2-7319-75500	Plate Lock Lid Left	1
MC30	141-2-7319-75400	Plate Lock Lid Right	1
MC31	141-2-8529-32300	Spring Arm Idler	2
MC32	4-2319-74360	Leaf Switch (Motor-A) [S901]	1
MC32	4-2319-74360	Leaf Switch (Motor-B) [S902]	1
MC32	4-2319-74360	Leaf Switch (Play) [S903]	1
MC33	141-2-4539-35500	Washer	2
MC34	141-2-8559-04700	Spring Pulley	2
MC35	141-0-5219-13200	Flywheel Compl	2
MC36	141-2-5649-27700	Belt Wind	2
MC37	141-2-5649-27100	Belt Drive	2
MC38	141-0-5519-13500	Idler Assy	1
MC39	141-2-4219-30100	Screw	4
MC40	141-2-4459-11800	Cushion Motor	4
MC41	4-5279-71520	Motor [M901 & M902]	2
MC42	141-2-4469-21300	Cushion	4
MC43	141-2-3789-10900	Bracket Motor	1
MC44	141-2-8519-01800	Spring Rewind Roller	1
MC45	141-2-8519-14300	Spring Lever Cassette Lid	1
MC46	141-2-8429-07700	Lever Speed Switch	1
MC47	141-2-8519-78601	Spring Slide Base	1
MC48	141-2-8429-07900	Lever R/P Switch	1
MC49	141-0-5519-12800	Idler Assy	1
MC50	4-2319-78590	Lever Switch (Dubbing) [S904]	1
MC51	141-2-8259-00300	Spacer Brake	1
MC52	141-2-4539-27603	Washer	2
MC53	141-2-4539-19800	Washer	2
MC54	141-2-4579-04400	E Ring	2
MC55	141-2-7319-72400	Plate Switch Motor Left	1
MC56	141-2-7319-72600	Plate Lock	2
MC57	141-2-7319-72500	Plate Switch Motor Right	1
MC58	141-2-4219-13201	Screw, w/Washer	2
MC59	141-2-8529-30400	Spring Pause Lutch	2
MC60	141-2-7419-99400	Lutch Pause	2
MC61	141-2-7419-99600	Lever Stopper Record	1
MC62	141-2-8529-31000	Spring Stop Record	1
MC63	141-2-7319-77400	Plate Amp. Switch	1
MC64	141-2-7419-99500	Lever Play	1
MC65	141-2-7429-00100	Lever Switch AMSS	1
MC66	141-2-7319-74900	Rod Stop Eject Right	1
MC67	141-2-7319-74800	Rod Play	1
MC68	141-2-7319-75100	Rod Rewind	2
MC69	141-2-7319-74600	Rod F.FWD	2
MC70	141-2-7319-74700	Rod Pause	2
MC71	141-2-7319-74400	Rod Speed Switch	1
MC72	141-2-7319-74500	Rod Dubbing	1
MC73	141-2-7319-75000	Rod Record	1
MC74	141-2-7319-77300	Rod Play	1
MC75	141-2-7319-75200	Rod Stop Eject Left	1
MC76	141-2-8549-33700	Spring Rod Base	2
MC77	141-2-8549-34800	Spring Lever ASO	2
MC78	141-2-8519-38700	Spring Lever Head	1
MC79	141-2-3519-77201	Bracket Rod	1
MC80	141-2-8549-37400	Spring Plate Motor	2
MC81	141-2-8519-03600	Spring Shut-off Lever	1
MC82	141-2-8529-30200	Spring Rod	3
MC83	141-2-4219-42100	Screw	1
MC84	141-2-7419-99900	Lever Dubbing	1
MC85	141-2-8549-04500	Spring Eject	1
MC86	141-2-8529-30100	Spring Rod Pause	1
MC87	141-2-8529-30900	Spring Rod Stop	1
MC88	141-2-8559-14300	Spring Base Slide	2
MZ1	101-3-1302-00411	Screw, Pan Hd., +M2.0x4	1
MZ2	101-3-1702-00511	Screw, Bind Hd., +M2.0x5	4
MZ3	101-3-1702-00711	Screw, Bind Hd., +M2.0x7	3
MZ4	103-3-1302-60511	Screw, Pan Hd. Tapping-2, +M2.6x5	1
MZ5	143-3-1702-00611	Screw, Bind Hd. Tapping-B, +M2.0x6	1
MZ6	143-3-1702-01211	Screw, Bind Hd. Tapping-B, +M2.0x12	3
MZ7	143-3-1702-60811	Screw, Bind Hd. Tapping-B, +M2.6x8	4
MZ8	112-3-1302-00012	E Ring, M2.0	2

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

ELECTRICAL ADJUSTMENTS

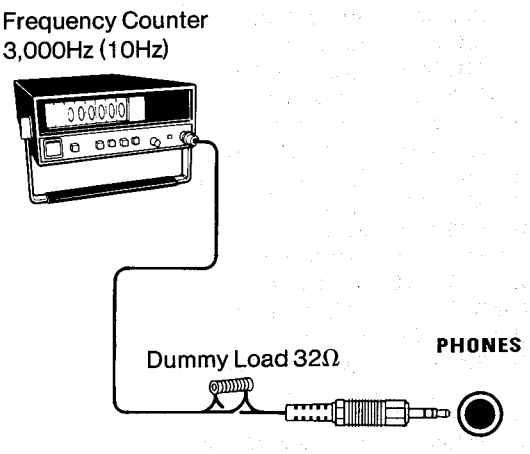
EQUIPMENT REQUIRED

- VTVM (2 sets)
- Frequency Counter
- Dummy Load (32Ω)
- Dualtrace Oscilloscope
- DC Constant-voltage Regulator
- Test Tapes
  - ‡ 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - ‡ 10kHz Test Tape (Example: TEAC MTT-114) for Head Azimuth Adjustment
- Alignment Tool

NORMAL TAPE SPEED ADJUSTMENT

Adjustment of 1 Side

1. Connect a frequency counter to the left or right channel output of the headphone jack as illustrated. Then, insert a 3kHz test tape (Example: TEAC MTT-111) into the cassette compartment.



2. Detach the Cabinet Bottom and adjust the tape speed by slowly turning the potentiometer inside the Motor of 1 side until the frequency counter reads 3,000Hz (±10Hz).

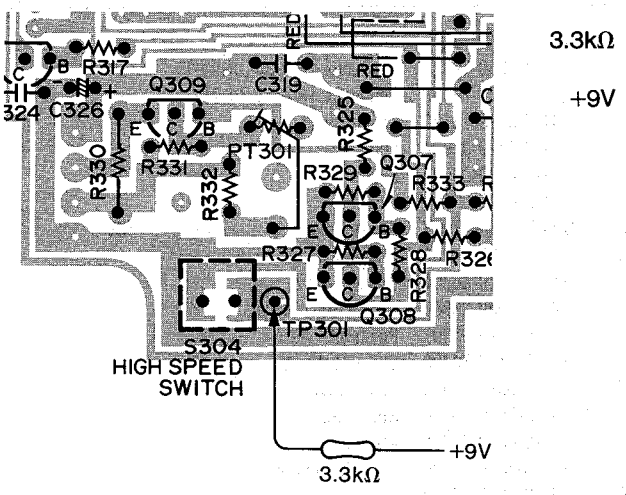
Adjustment of 2 Side

1. Adjust the potentiometer inside the Motor of 2 side by following the same procedure as in 1 side.

DOUBLE TAPE SPEED ADJUSTMENT

1. Connect the frequency counter as the same way as the normal speed adjustment.

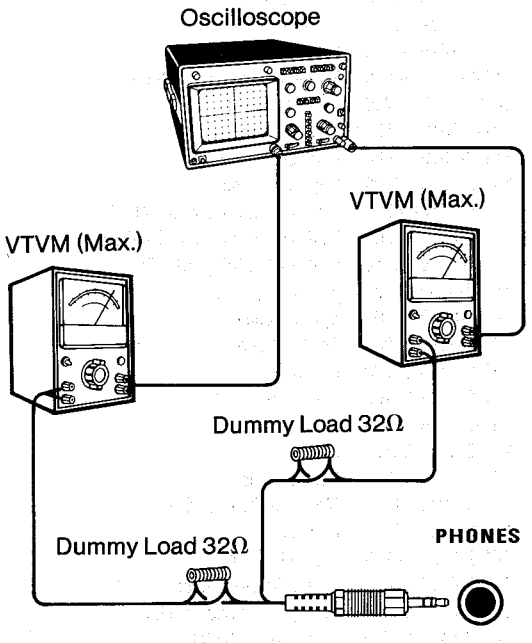
2. Apply a +9V to TP301 through a resistor 3.3kΩ. (Unit is set a Double Speed Mode.)



3. First play back the test tape on Tape 2 side and observe the figure of the Frequency Counter. Then play back the test tape on Tape 1 side and adjust the PT301 until the figure of the Frequency Counter shows ±20Hz against on Tape 2.

HEAD AZIMUTH ADJUSTMENT

Detach the cassette compartment lid from the unit and connect a dualtrace oscilloscope and a VTVM to both channel outputs of the headphone jack as illustrated.



ELECTRICAL ADJUSTMENTS (Continued)

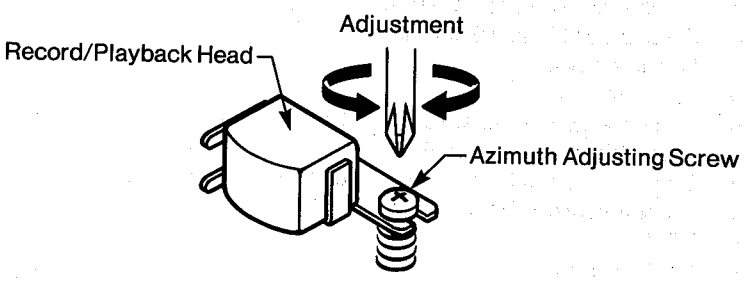
Then, set the dualtrace oscilloscope as follows:

- ‡ MODE ..... CHOP (chopped)
- ‡ SOURCE ..... INT (internal), CH1 or CH2
- ‡ SWEEP MODE ..... AUTO (automatic)

NOTE:
Adjust the field on the oscilloscope with the VOLT. ADJ. and TIME ADJ.

1. Insert a 10kHz test tape (Example: TEAC MTT-114) into the cassette compartment.

2. While playing back the test tape, turn the azimuth adjusting screw until the wave forms of the right and left channels are superimposed and set to optimum at maximum reading on the VTVM.



3. After the adjustment, secure the adjusting screw with paint or glue.

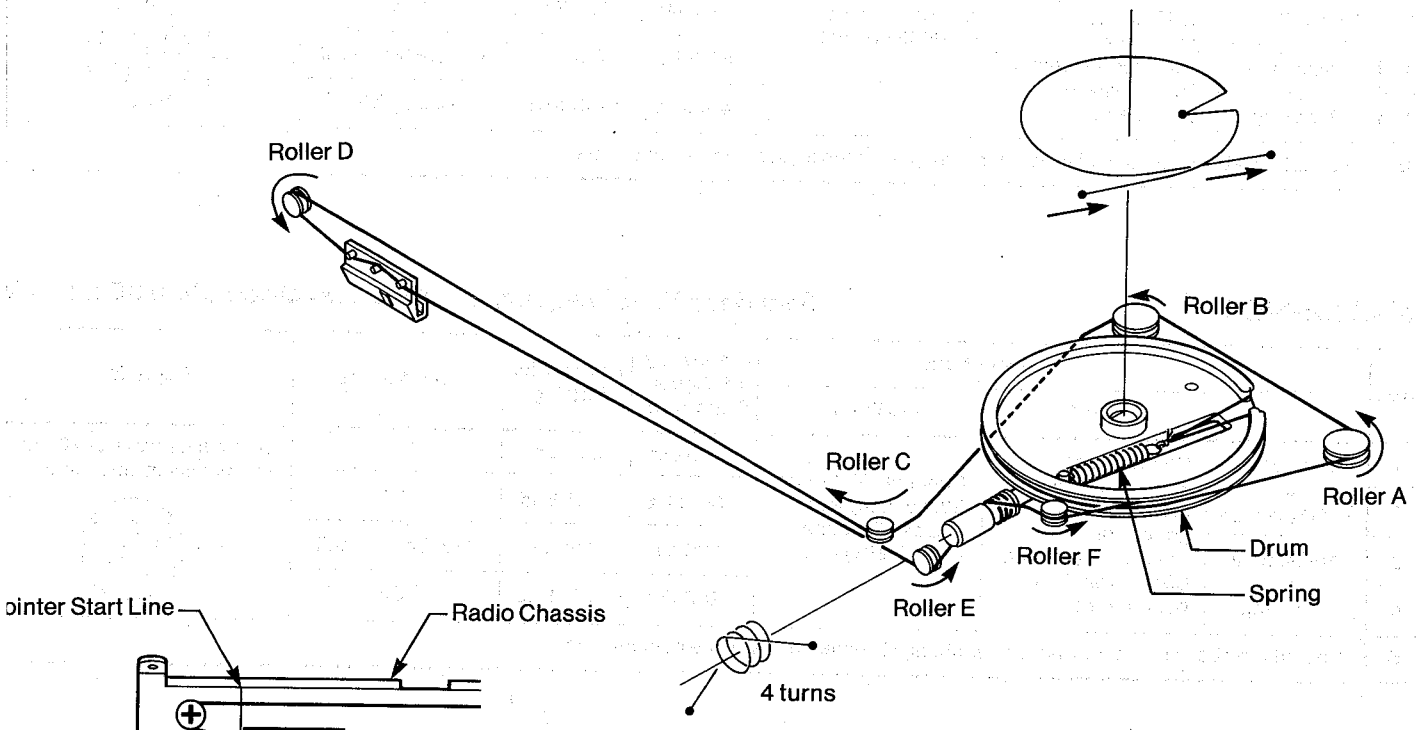
DIAL CORD STRINGING

. Tie the dial cord which is 950mm long (effective length: 890mm) and 0.4ϕ thick to the spring.

2. Attach the spring to the drum and attach the dial cord following the instructions.
Drum → Roller A → Roller B → Roller C → Roller D → Roller E → Tuning Shaft (4 turns) → Roller F → Drum → Spring

3. Set the pointer to the line of the radio chassis and attach the pointer to the dial cord.

4. Secure the knot of the dial cord with paint or glue.
Secure the pointer to the dial cord with instant glue.



TUNER ADJUSTMENT

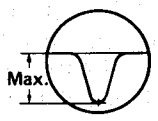
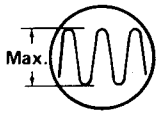
EQUIPMENT REQUIRED

- AM Standard Signal Generator
- FM Standard Signal Generator
- Generator Scope
- Loop Antenna
- Dummy Antenna (30Ω/10pF) for SW
- Ceramic Capacitor (10pF)
- Dummy Antenna (75Ω, unbalanced type) for FM
- Carbon Resistor (100kΩ)
- VTVM
- Oscilloscope
- Frequency Counter
- Dummy Load (32Ω)
- Alignment Tool
- Before performing the adjustment, set the switches and controls as follows:
  - ‡ Function Switch ..... RADIO
  - ‡ FM Mode Switch ..... MONO
  - ‡ Volume Control ..... Arbitrary

NOTE:
Use an alignment tool with plastic grip for all adjustments.

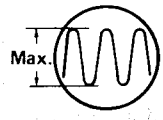
MW ALIGNMENT

Standard Test Frequency 400Hz and Modulation 30% at AM

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of IF for MW	Connect loop antenna to output terminal of gene-scope. Place loop antenna by bar anttenna.	Connect input terminal of gene-scope to detector output terminal (TP6).	460kHz	Low End	T3	Obtain symmetrical curve and maximum amplitude. 
2	Calibration of Tuning Range	Connect loop antenna to output of AM signal generator. Place loop antenna 60cm away from bar antenna.	Connect VTVM with 32Ω dummy load and oscilloscope to PHONES Jack.	510kHz		T6	Obtain sine-wave of 400Hz and maximum amplitude. 
3				1,670kHz	High End	TC4	
4	Adjustment of Tracking			600kHz	600kHz	L4-1 (bar ant. coil)	
5				1,400kHz	1,400kHz	TC3 (PVC)	
6	Repeat the above steps until no further change is noted in any of the adjustments.						

LW ALIGNMENT

Standard Test Frequency 400Hz and Modulation 30% at AM

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of Tuning Range	Connect loop antenna to output of AM signal generator. Place loop antenna 60cm away from bar antenna.	Connect VTVM with 32Ω dummy load and oscilloscope to PHONES jack.	145kHz	Low End	T7	Obtain sine-wave of 400Hz and maximum amplitude. 
2				300kHz	High End	TC5	
3	Adjustment of Tracking			160kHz	160kHz	L4-2 (bar ant. coil)	
4				280kHz	280kHz	TC2	
5	Repeat the above steps until no further change is noted in any of the adjustments.						

TUNER ADJUSTMENT (Continued)

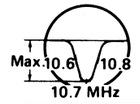
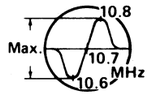
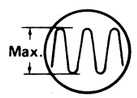
SW ALIGNMENT

Standard Test Frequency 400Hz and Modulation 30% at AM

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of Tuning Range	Connect AM signal generator to antenna terminals (TP1 and TP2) through dummy antenna (30Ω/10pF).	Connect VTVM with 32Ω dummy load and oscilloscope to PHONES jack.	5.7MHz	Low End	T5	Obtain sine-wave of 400Hz and maximum amplitude.
2				18.7MHz	High End	TC3	
3	Adjustment of Tracking			6.5MHz	6.5MHz	T4	
4				17.0MHz	17.0MHz	TC1	
5	Repeat the above steps until no further change is noted in any of the adjustments.						

FM ALIGNMENT

Standard test frequency 400Hz and deviation 22.5kHz

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of IF	Place output of gene-scope to TP5 through capacitor (10pF).	Connect input terminal of gene-scope to detector output terminals (TP6).	10.7MHz	Low End	Turn T2 (blue core) fully counter-clockwise and then, adjust T1.	Obtain symmetrical curve and maximum amplitude. 
2						T2 (blue core)	Obtain **S** curve and maximum amplitude. 
3	Calibration of Tuning Range	Connect FM signal generator to antenna terminals (TP1 and TP2) through dummy antenna (75Ω, unbalanced type).	Connect VTVM with 32Ω dummy load and oscilloscope to PHONES jack.	87.35MHz		L2	Obtain sine-curve and maximum amplitude. 
4				108.25MHz	High End	TC2 (PVC)	
5	Adjustment of Tracking			90MHz	90MHz	L1	
6				106MHz	106MHz	TC1 (PVC)	
7	Repeat the above steps until no further change is noted in any of the adjustments.						

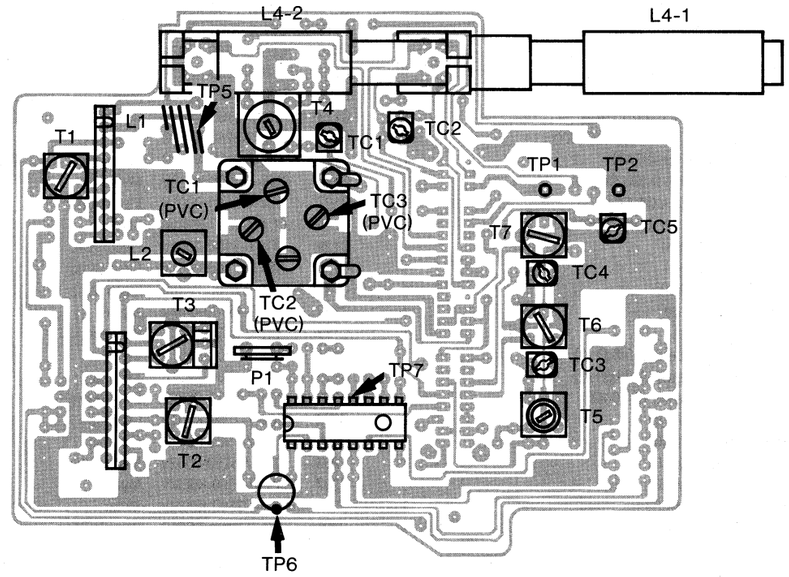
FM MPX (Multiplex) ADJUSTMENT

19kHz (V.C.O.) ADJUSTMENT

1. Before the adjustment, set the switches as follows:
   - FM Mode Switch ..... STEREO
   - Band Select Switch ..... FM
2. Connect a flequency counter to TP7 through a resistor 100kΩ.
3. Adjust the potentiometer (P1) until the oscillation frequency of IC3 becomes 19kHz (±20Hz).

TUNER P.C.BOARD LAYOUT ALIGNMENT POINTS

(TOP VIEW)



P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	AMPLIFIER P.C.B. ASSY		
PCB1	141-0-1939-13212	Amplifier P.C.B. Assy	1
	4-2369-73781	Pin 1P	3
	141-2-3529-49800	CUP Switch	1
	141-2-3689-08400	Radiator IC (for IC303)	1
	141-2-3899-15600	Holder Mike	1
	141-2-4469-56000	Cushion Mike	1
BM301	4-1539-70722	Microphone	1
CN301	4-2369-74480	Plug 5P	1
CN303	4-2369-73360	Connector 3P	1
CN304	4-2369-73360	Connector 3P	1
J301	4-2359-75701	Jack 5P (HEADPHONES)	1
J302	4-2359-76360	Ext. Power Socket	1
S301	4-2319-78810	Lever Switch (FUNCTION)	1
S302	4-2319-78640	Slide Switch (RECORD/PLAY)	1
S303	4-2319-75590	Slide Switch (BEAT)	1
S304	4-2319-73990	Leaf Switch (HIGH SPEED)	1
S305	4-2319-78840	Slide Switch (MODE)	1
S306	4-2319-79201	Push Switch (CONTINUOUS)	1
L101	4-2729-70700	Coil (3.3mH)	1
L102	4-2729-70480	Coil (33mH)	1
L201	4-2729-70900	Coil (3.3mH)	1
L202	4-2729-70480	Coil (33mH)	1
T351	4-2589-73090	OSC Trans	1
VR301	4-2229-76260	Slide Volume (B-50kΩx2)	1
VR302	4-2229-76270	Slide Volume (A-20kΩx2)	1
PT301	4-2229-72960	Potentiometer (B-200Ω)	1
D101	202-5-3160-00110	Diode, GMA 01	1
D102	202-5-3160-00110	Diode, GMA 01	1
D201	202-5-3160-00110	Diode, GMA 01	1
D202	202-5-3160-00110	Diode, GMA 01	1
D301	202-5-3160-00110	Diode, GMA 01	1
D302	202-5-3160-00110	Diode, GMA 01	1
D303	202-5-3160-00110	Diode, GMA 01	1
D304	202-5-3160-00110	Diode, GMA 01	1
D305	4-2029-72210	Zener Diode, MTZ 6.8A	1
IC301	4-2069-74180	IC, TA 7739 P	1
IC302	4-2069-74340	IC, BA 3306	1
IC303	207-5-0774-55510	IC, LA 4555	1
Q101	203-5-5000-53664	Transistor, 2SC 536	1
Q102	203-5-5000-53664	Transistor, 2SC 536	1
Q201	203-5-5000-53664	Transistor, 2SC 536	1
Q202	203-5-5000-53664	Transistor, 2SC 536	1
Q301	203-5-5000-53664	Transistor, 2SC 536	1
Q302	203-5-5000-53664	Transistor, 2SC 536	1
Q303	203-5-5000-53664	Transistor, 2SC 536	1
Q304	203-5-5000-53660	Transistor, 2SC 536	1
Q305	203-5-4570-73460	Transistor, 2SD 734	1
Q306	203-5-5000-53660	Transistor, 2SC 536	1
Q307	203-5-5000-53660	Transistor, 2SC 536	1
Q308	203-5-5000-53660	Transistor, 2SC 536	1
Q309	203-5-5083-33165	Transistor, 2SC 3331	1
Q310	203-5-5083-33165	Transistor, 2SC 3331	1
Q311	203-5-4580-69860	Transistor, 2SB 698	1
Q351	203-5-5083-33165	Transistor, 2SC 3331	1
C101	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C102	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C103	CD4-7-663A-0002V	Electrolytic 47μF 6.3V	1
C104	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C105	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C106	CD4-7-5250-0002V	Electrolytic 4.7μF 25V	1
C107	CM1-0-3500-K00MV	Mylar 0.01μF 50V ±10%	1
C108	CM3-9-3500-K00MV	Mylar 0.039μF 50V ±10%	1
C109	CI1-0-3160-NG01R	Boundary 0.01μF 16V ±30%	1
C110	CC8-2-0500-KE01R	Ceramic 82pF 50V ±10%	1
C111	CC2-2-1500-KE01R	Ceramic 220pF 50V ±10%	1
C112	CC3-3-1500-KE01R	Ceramic 330pF 50V ±10%	1
C113	CD1-0-763A-0001V	Electrolytic 100μF 6.3V	1
C114	CM3-9-3500-K00MV	Mylar 0.039μF 50V ±10%	1
C115	CM1-5-3500-K00MV	Mylar 0.015μF 50V ±10%	1
C116	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C117	CD1-0-4500-0001V	Electrolytic 0.1μF 50V	1
C118	CC5-6-1500-KE01R	Ceramic 560pF 50V ±10%	1
C119	CC1-2-1500-KE01R	Ceramic 120pF 50V ±10%	1
C120	CD1-0-6160-0002V	Electrolytic 10μF 16V	1
C121	CC3-3-1500-KE01R	Ceramic 330pF 50V ±10%	1
C122	CM3-9-3500-K00SV	Mylar 0.039μF 50V ±10%	1
C123	CI1-5-2160-NF01R	Boundary 0.0015μF 16V ±30%	1
C124	CI2-2-3250-KF00C	Boundary 0.022μF 25V ±10%	1
C125	CI2-2-2160-NF01R	Boundary 0.0022μF 16V ±30%	1
C126	CM6-8-3500-K00SV	Mylar 0.068μF 50V ±10%	1
C127	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C128	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C129	CD1-0-7100-0001V	Electrolytic 100μF 10V	1
C130	CD1-0-7100-0001V	Electrolytic 100μF 10V	1
C131	CD1-0-8100-0006V	Electrolytic 1000μF 10V	1
C132	CM1-5-4500-K00MV	Mylar 0.15μF 50V ±10%	1
C133	CI1-0-3250-KF00C	Boundary 0.01μF 25V ±10%	1
C201	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C202	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C203	CD4-7-663A-0002V	Electrolytic 47μF 6.3V	1
C204	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C205	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C206	CD4-7-5250-0002V	Electrolytic 4.7μF 25V	1
C207	CM1-0-3500-K00MV	Mylar 0.01μF 50V ±10%	1
C208	CM3-9-3500-K00MV	Mylar 0.039μF 50V ±10%	1
C209	CI1-0-3160-NG01R	Boundary 0.01μF 16V ±30%	1
C210	CC8-2-0500-KE01R	Ceramic 82pF 50V ±10%	1
C211	CC2-2-1500-KE01R	Ceramic 220pF 50V ±10%	1
C212	CC3-3-1500-KE01R	Ceramic 330pF 50V ±10%	1
C213	CD1-0-763A-0002V	Electrolytic 100μF 6.3V	1
C214	CM3-9-3500-K00MV	Mylar 0.039μF 50V ±10%	1
C215	CM1-5-3500-K00MV	Mylar 0.015μF 50V ±10%	1
C216	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C217	CD1-0-4500-0001V	Electrolytic 0.1μF 50V	1
C218	CC5-6-1500-KE01R	Ceramic 560pF 50V ±10%	1
C219	CC1-2-1500-KE01R	Ceramic 120pF 50V ±10%	1
C220	CD1-0-6160-0002V	Electrolytic 10μF 16V	1
C221	CC3-3-1500-KE01R	Ceramic 330pF 50V ±10%	1
C222	CM3-9-3500-K00SV	Mylar 0.039μF 50V ±10%	1
C223	CI1-5-2160-NF01R	Boundary 0.0015μF 16V ±30%	1
C224	CI2-2-3250-KF00C	Boundary 0.022μF 25V ±10%	1
C225	CI2-2-2160-NF01R	Boundary 0.0022μF 16V ±30%	1
C226	CM6-8-3500-K00SV	Mylar 0.068μF 50V ±10%	1
C227	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C228	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C229	CD1-0-7100-0001V	Electrolytic 100μF 10V	1
C230	CD1-0-7100-0001V	Electrolytic 100μF 10V	1
C231	CD1-0-8100-0006V	Electrolytic 1000μF 10V	1
C232	CM1-5-4500-K00MV	Mylar 0.15μF 50V ±10%	1
C233	CI1-0-3250-KF00C	Boundary 0.01μF 25V ±10%	1
C301	CD2-2-7100-0001V	Electrolytic 220μF 10V	1
C302	CD4-7-6100-0001V	Electrolytic 47μF 10V	1
C303	CC4-7-1500-KE01R	Ceramic 470pF 50V ±10%	1
C304	CD2-2-6100-0001V	Electrolytic 22μF 10V	1
C305	CI4-7-3250-KF00C	Boundary 0.047μF 25V ±10%	1
C306	CI4-7-2160-NF01R	Boundary 0.0047μF 16V ±30%	1
C307	CD2-2-6100-0001V	Electrolytic 22μF 10V	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
C308	CD2-2-6100-0001V	Electrolytic 22μF 10V	1
C309	CD1-0-6160-0002V	Electrolytic 10μF 16V	1
C310	CD1-0-7100-0001V	Electrolytic 100μF 10V	1
C311	CD2-2-6100-0001V	Electrolytic 22μF 10V	1
C312	CD1-0-7100-0001V	Electrolytic 100μF 10V	1
C313	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C314	CD4-7-7160-0006V	Electrolytic 470μF 16V	1
C315	CD2-2-7100-0001V	Electrolytic 220μF 10V	1
C316	CD2-2-7100-0001V	Electrolytic 220μF 10V	1
C317	CC2-2-3500-ZG00C	Ceramic 0.022μF 50V +80,-20%	1
C318	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C319	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C320	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C321	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C322	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C323	CC1-0-1500-KE01R	Ceramic 100pF 50V ±10%	1
C324	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C351	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C352	CM2-2-3500-K00SV	Mylar 0.022μF 50V ±10%	1
C353	CM1-0-3500-K00SV	Mylar 0.01μF 50V ±10%	1
C354	CM1-0-3500-K00SV	Mylar 0.01μF 50V ±10%	1
C355	CP2-2-2101-J001V	Polypropylen 0.0022μF 100V ±5%	1
C356	CC1-0-2500-KE01R	Ceramic 0.001μF 50V ±10%	1
C357	CC3-9-2500-KE00C	Ceramic 0.0039μF 50V ±10%	1
R101	401 029 6002	CARBON 180K JA 1/8W	1
R102	401 032 6303	CARBON 75 JA 1/8W	1
R103	401 028 3705	CARBON 10K JA 1/8W	1
R104	401 028 9301	CARBON 13K JA 1/8W	1
R105	401 028 3200	CARBON 1K JA 1/8W	1
R106	401 028 7109	CARBON 1.2K JA 1/8W	1
R107	401 031 6601	CARBON 4.7K JA 1/8W	1
R108	401 030 0709	CARBON 22K JA 1/8W	1
R109	401 030 1300	CARBON 220K JA 1/8W	1
R110	401 031 5000	CARBON 43K JA 1/8W	1
R111	401 032 8703	CARBON 8.2K JA 1/8W	1
R112	401 032 1100	CARBON 56K JA 1/8W	1
R113	401 016 2604	CARBON 220 JA 1/4W	1
R114	401 031 9602	CARBON 56 JA 1/8W	1
R115	401 028 2104	CARBON 10 JA 1/8W	1
R116	401 030 0709	CARBON 22K JA 1/8W	1
R117	401 028 3705	CARBON 10K JA 1/8W	1
R118	401 029 9706	CARBON 220 JA 1/8W	1
R119	401 028 3705	CARBON 10K JA 1/8W	1
R120	401 028 7604	CARBON 12K JA 1/8W	1
R121	401 031 1200	CARBON 36K JA 1/8W	1
R122	401 029 1502	CARBON 15K JA 1/8W	1
R124	401 030 4202	CARBON 2.7K JA 1/8W	1
R125	401 032 3500	CARBON 68 JA 1/8W	1
R126	401 032 4002	CARBON 680 JA 1/8W	1
R127	401 021 7908	CARBON 62 JA 1/4W	1
R201	401 029 6002	CARBON 180K JA 1/8W	1
R202	401 032 6303	CARBON 75 JA 1/8W	1
R203	401 028 3705	CARBON 10K JA 1/8W	1
R204	401 028 9301	CARBON 13K JA 1/8W	1
R205	401 028 3200	CARBON 1K JA 1/8W	1
R206	401 028 7109	CARBON 1.2K JA 1/8W	1
R207	401 031 6601	CARBON 4.7K JA 1/8W	1
R208	401 030 0709	CARBON 22K JA 1/8W	1
R209	401 030 1300	CARBON 220K JA 1/8W	1
R210	401 031 5000	CARBON 43K JA 1/8W	1
R211	401 032 8703	CARBON 8.2K JA 1/8W	1
R212	401 032 1100	CARBON 56K JA 1/8W	1
R213	401 016 2604	CARBON 220 JA 1/4W	1
R214	401 031 9602	CARBON 56 JA 1/8W	1
R215	401 028 2104	CARBON 10 JA 1/8W	1
R216	401 030 0709	CARBON 22K JA 1/8W	1
R217	401 028 3705	CARBON 10K JA 1/8W	1
R218	401 029 9706	CARBON 220 JA 1/8W	1
R219	401 028 3705	CARBON 10K JA 1/8W	1
R220	401 028 7604	CARBON 12K JA 1/8W	1
R221	401 031 1200	CARBON 36K JA 1/8W	1
R222	401 029 1502	CARBON 15K JA 1/8W	1
R224	401 030 4202	CARBON 2.7K JA 1/8W	1
R225	401 032 3500	CARBON 68 JA 1/8W	1
R226	401 032 4002	CARBON 680 JA 1/8W	1
R227	401 021 7908	CARBON 62 JA 1/4W	1
R301	401 028 2609	CARBON 100 JA 1/8W	1
R302	401 028 3705	CARBON 10K JA 1/8W	1
R303	401 030 0709	CARBON 22K JA 1/8W	1
R304	401 030 0709	CARBON 22K JA 1/8W	1
R305	401 031 6601	CARBON 4.7K JA 1/8W	1
R306	401 028 3200	CARBON 1K JA 1/8W	1
R307	401 030 5209	CARBON 270K JA 1/8W	1
R308	401 028 3705	CARBON 10K JA 1/8W	1
R309	401 031 4508	CARBON 430 JA 1/8W	1
R310	401 028 3705	CARBON 10K JA 1/8W	1
R311	401 030 0204	CARBON 2.2K JA 1/8W	1
R312	401 028 2104	CARBON 10 JA 1/8W	1
R313	401 018 6600	CARBON 3.3M JA 1/4W	1
R314	401 016 3809	CARBON 2.2K JA 1/4W	1
R315	401 028 4207	CARBON 100K JA 1/8W	1
R316	401 016 4806	CARBON 22K JA 1/4W	1
R317	401 030 0709	CARBON 22K JA 1/8W	1
R318	401 012 5708	CARBON 1K JA 1/4W	1
R319	401 031 1903	CARBON 390 JA 1/8W	1
R320	401 031 8308	CARBON 5.6 JA 1/8W	1
R321	401 029 3100	CARBON 1.6K JA 1/8W	1
R322	401 012 3407	CARBON 10 JA 1/4W	1
R323	401 029 3407	CARBON 16K JA 1/8W	1
R324	401 029 0901	CARBON 1.5K JA 1/8W	1
R325	401 030 0709	CARBON 22K JA 1/8W	1
R326	401 030 0709	CARBON 22K JA 1/8W	1
R327	401 028 3705	CARBON 10K JA 1/8W	1
R328	401 030 0709	CARBON 22K JA 1/8W	1
R329	401 028 4207	CARBON 100K JA 1/8W	1
R330	4-2219-71431	LT Resistor 820 OHM	1
R331	401 029 0406	CARBON 150 JA 1/8W	1
R332	401 032 7805	CARBON 82 JA 1/8W	1
R333	401 028 3705	CARBON 10K JA 1/8W	1
R334	4-2219-71431	LT Resistor 820 OHM	1
R335	401 032 7805	CARBON 82 JA 1/8W	1
R336	401 028 7109	CARBON 1.2K JA 1/8W	1
R337	401 028 3705	CARBON 10K JA 1/8W	1
R338	401 014 4105	CARBON 1.5K JA 1/4W	1
R339	401 028 3200	CARBON 1K JA 1/8W	1
R351	401 012 3407	CARBON 10 JA 1/4W	1
R352	401 032 4606	CARBON 6.8K JA 1/8W	1
R353	401 030 8200	CARBON 33 JA 1/8W	1
R354	401 028 2104	CARBON 10 JA 1/8W	1
	RADIO TUNER P.C.B. ASSY		
PCB2	141-0-1939-16081	Radio Tuner P.C.B. Assy	1
	103-3-1302-00811	Screw, Pan Hd. Tapping-2, +M2.0x8	2
	4-2359-79569	Connector 2P Assy	1
CN301	4-2359-79417	Connector 5P Assy	1
SW1	4-2319-78310	Slide Switch (FUNCTION)	1
BPF1	4-2539-71021	Band Pass Filter	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
L1	4-2599-70810	RF Coil				1
L2	4-2589-71960	FM OSC Trans				1
L3	4-2532-00040	Choke Coil (1mH)				1
L4	4-2579-72391	Bar Antenna				1
T1	4-2569-71631	IFT FM				1
T2	4-2569-71340	IFT FM				1
T3	4-2569-71353	IFT AM				1
T4	4-2579-70722	Antenna Coil				1
T5	4-2589-71422	OSC Trans SW				1
T6	4-2589-71413	OSC Trans MW				1
T7	4-2589-71402	OSC Trans LW				1
PVC1	4-2249-71091	Variable Condenser				1
TC1	4-2249-70810	Trimmer Condenser				1
TC2	4-2249-70812	Trimmer Condenser				1
TC3	4-2249-70810	Trimmer Condenser				1
TC4	4-2249-70810	Trimmer Condenser				1
TC5	4-2249-70812	Trimmer Condenser				1
TP1	4-2369-73781	Pin 1P				2
TP2	4-2369-73783	Pin 1P				2
CF1	4-2539-70881	Ceramic Filter				1
CF2	4-2539-70682	Mechanical Filter				1
CF3	4-2539-70881	Ceramic Filter				1
P1	4-2229-73060	Potentiometer (B-10kΩ)				1
D1	4-2029-71440	Diode, 1SS 95				1
IC1	4-2069-74790	IC, BA 4412				1
IC2	4-2069-72964	Ic, BA 4236 L				1
IC3	4-2069-72801	IC, BA 1335				1
Q1	4-2039-71200	Transistor, 2SC 2063				1
C1	CC5-6-A500-KD01R	Ceramic	5.6pF	50V	±10%	1
C2	CC1-5-0500-JD01R	Ceramic	15pF	50V	±5%	1
C3	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C4	CC1-0-2500-KE00R	Ceramic	0.001μF	50V	±10%	1
C5	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C6	CC2-4-0500-JCH0C	Ceramic	24pF	50V	±5%	1
C7	CC1-0-0500-JD01R	Ceramic	10pF	50V	±5%	1
C8	CC4-7-A500-KD01R	Ceramic	4.7pF	50V	±10%	1
C9	CI2-2-3160-NG00R	Boundary	0.022μF	16V	±30%	1
C10	CI2-2-3250-KF00C	Boundary	0.022μF	25V	±10%	1
C11	CD1-0-6160-0002V	Electrolytic	10μF	16V		1
C12	CI2-2-3160-NG00R	Boundary	0.022μF	16V	±30%	1
C13	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C14	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1
C15	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C16	CC1-5-0500-JD00R	Ceramic	15pF	50V	±5%	1
C17	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C18	CC1-5-0500-JD01R	Ceramic	15pF	50V	±5%	1
C19	CC2-0-0500-JD01R	Ceramic	20pF	50V	±5%	1
C20	CI2-2-3160-NG00R	Boundary	0.022μF	16V	±30%	1
C21	CC1-5-0500-JD01R	Ceramic	15pF	50V	±5%	1
C22	CC6-8-0500-JD00C	Ceramic	68pF	50V	±5%	1
C23	CP3-1-2101-J002V	Polypropylen	0.0031μF	100V	±5%	1
C24	CP3-6-1101-J002V	Polypropylen	360pF	100V	±5%	1
C25	CP2-4-1101-J002V	Polypropylen	240pF	100V	±5%	1
C26	CC1-2-0500-JD01R	Ceramic	12pF	50V	±5%	1
C27	CC2-4-0500-JD01R	Ceramic	24pF	50V	±5%	1
C28	CC1-8-1500-KE01R	Ceramic	180pF	50V	±10%	1
C29	CC4-7-A500-KD01R	Ceramic	4.7pF	50V	±10%	1
C30	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C31	CD1-0-5500-0001V	Electrolytic	1μF	50V		1
C32	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1
C33	CP6-8-1101-J002V	Polypropylen	680pF	100V	±5%	1
C34	CD2-2-4500-0001V	Electrolytic	0.22μF	50V		1
C35	CD4-7-4500-0001V	Electrolytic	0.47μF	50V		1
C36	CD1-0-5500-0001V	Electrolytic	1μF	50V		1

Ref. No.	Part No.	Description				Q'ty
C37	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C38	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C39	CD1-0-4500-0002V	Electrolytic	0.1μF	50V		1
C40	CD1-0-4500-0002V	Electrolytic	0.1μF	50V		1
C41	CI8-2-2250-KE00C	Boundary	0.0082μF	25V	±10%	1
C42	CI8-2-2250-KE00C	Boundary	0.0082μF	25V	±10%	1
C43	CD1-0-7100-0001V	Electrolytic	100μF	10V		1
C44	CI2-2-3250-KF00C	Boundary	0.022μF	25V	±10%	1
C45	CD4-7-7100-0006V	Electrolytic	470μF	10V		1
C46	CC1-0-1500-KE00C	Ceramic	100pF	50V	±10%	1
C47	CC1-0-1500-KE01R	Ceramic	100pF	50V	±10%	1
C48	CC2-4-0500-JD01R	Ceramic	24pF	50V	±5%	1
R1	401 028 2104	CARBON 10 JA 1/8W				1
R2	401 031 0203	CARBON 330K JA 1/8W				1
R3	401 031 0203	CARBON 330K JA 1/8W				1
R4	401 031 0203	CARBON 330K JA 1/8W				1
R6	401 031 2405	CARBON 3.9K JA 1/8W				1
R7	401 028 4702	CARBON 1M JA 1/8W				1
R8	401 030 0204	CARBON 2.2K JA 1/8W				1
R9	401 012 3407	CARBON 10 JA 1/4W				1
R10	401 030 8200	CARBON 33 JA 1/8W				1
R11	401 029 1502	CARBON 15K JA 1/8W				1
R12	401 028 3200	CARBON 1K JA 1/8W				1
R13	401 031 6106	CARBON 470 JA 1/8W				1
R14	401 031 2405	CARBON 3.9K JA 1/8W				1
R15	401 031 2405	CARBON 3.9K JA 1/8W				1
R16	401 028 3200	CARBON 1K JA 1/8W				1
R17	401 028 3200	CARBON 1K JA 1/8W				1
R18	401 029 1502	CARBON 15K JA 1/8W				1
R19	401 029 1502	CARBON 15K JA 1/8W				1
R20	401 029 0901	CARBON 1.5K JA 1/8W				1
R21	401 031 5505	CARBON 47 JA 1/8W				1
R22	401 031 5505	CARBON 47 JA 1/8W				1
R23	401 028 3200	CARBON 1K JA 1/8W				1
R24	401 028 3705	CARBON 10K JA 1/8W				1
R25	401 028 2104	CARBON 10 JA 1/8W				1
R26	401 032 8208	CARBON 820 JA 1/8W				1
R27	401 028 3200	CARBON 1K JA 1/8W				1

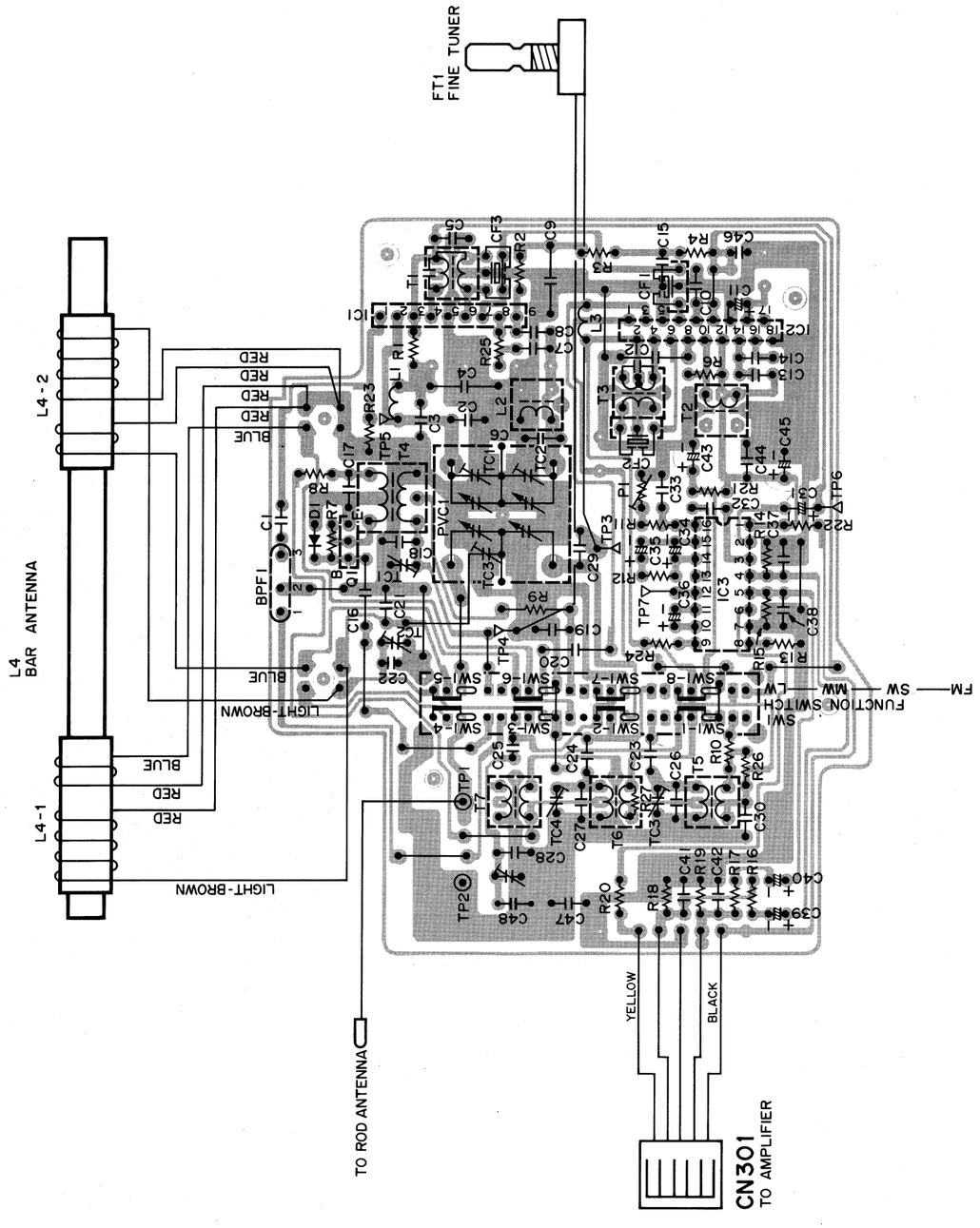
LED P.C.B. ASSY

PCB3	141-0-1939-16051	LED P.C.B. Assy	1
CN902	4-2359-79515	Connector 3P Assy	1
D306	4-2029-74430	LED, SLB 23 UR 3 (BATT/OPR)	1
D307	4-2029-74430	LED, SLB 23 UR 3 (FM ST)	1

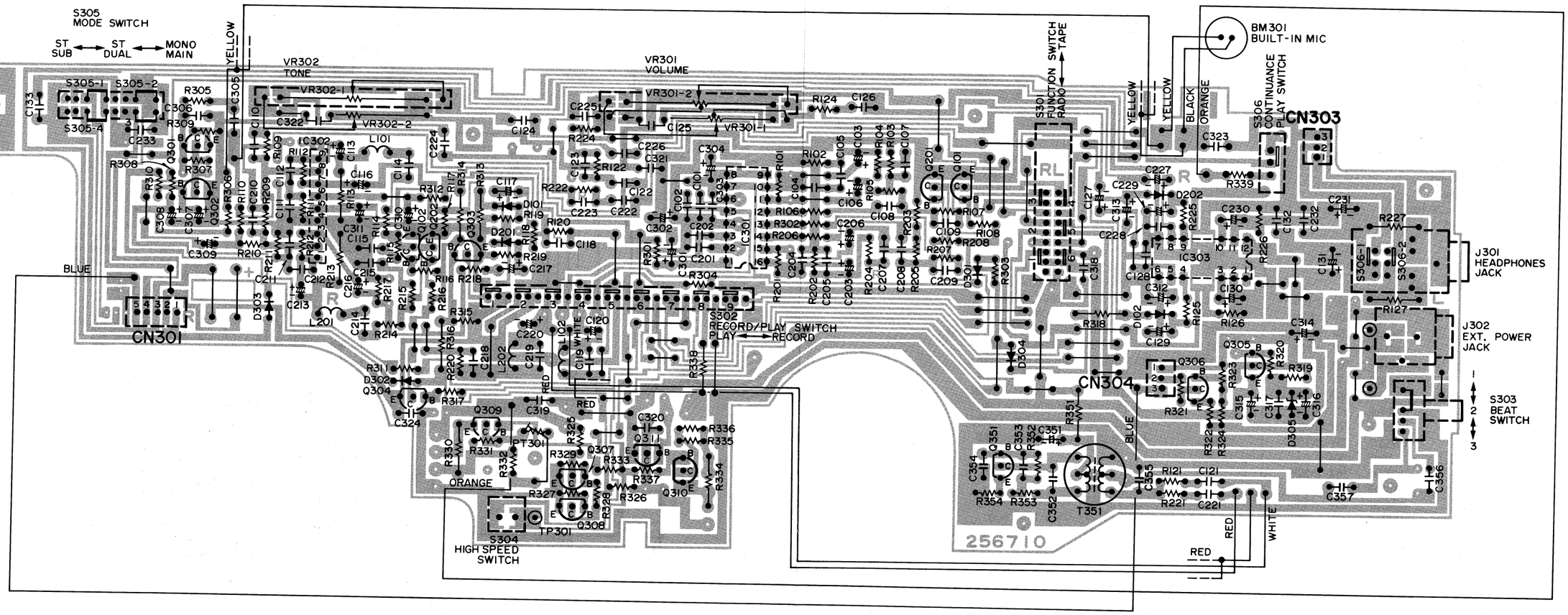
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

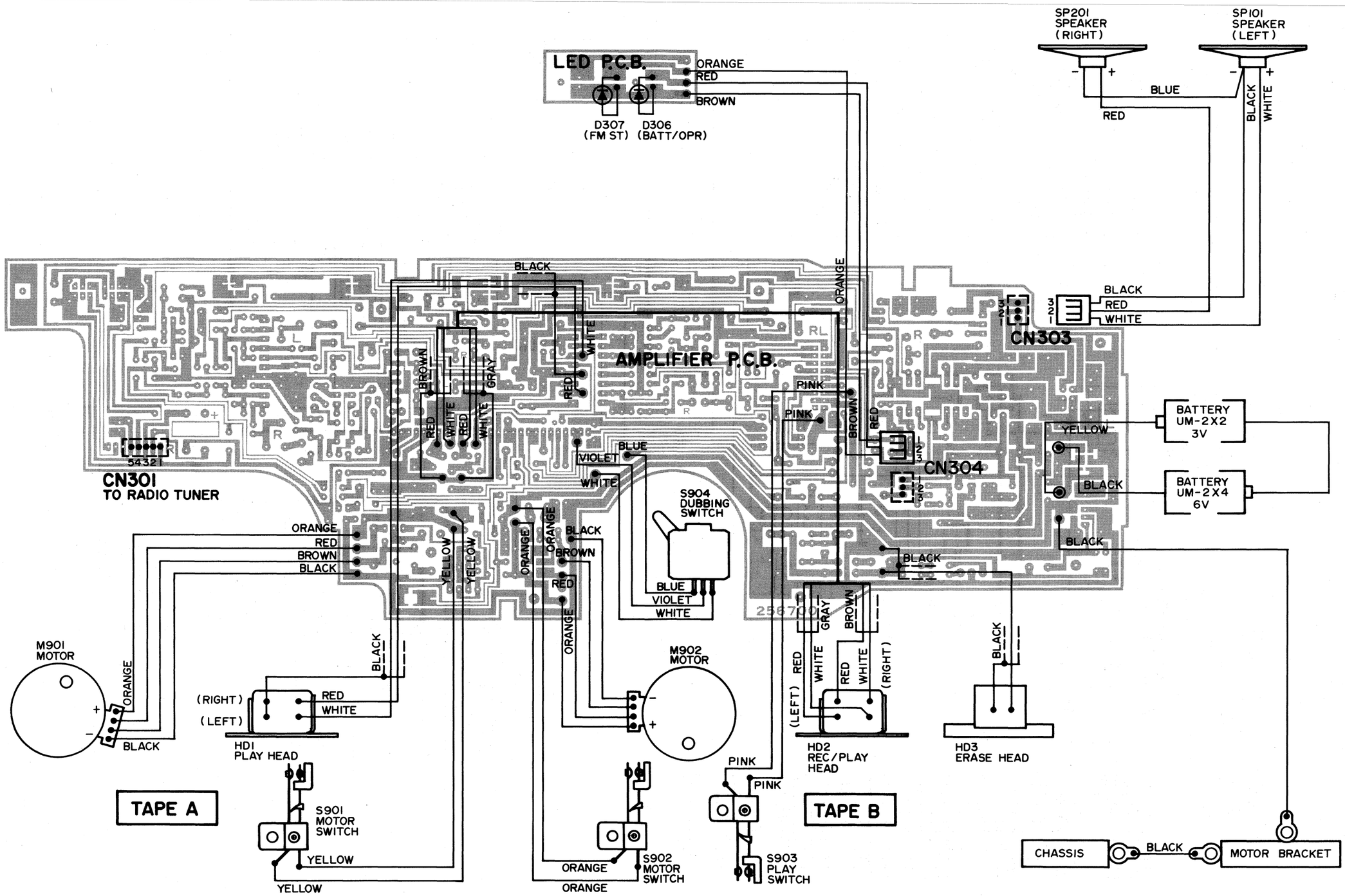
TUNER P.C.BOARD
(BOTTOM VIEW)



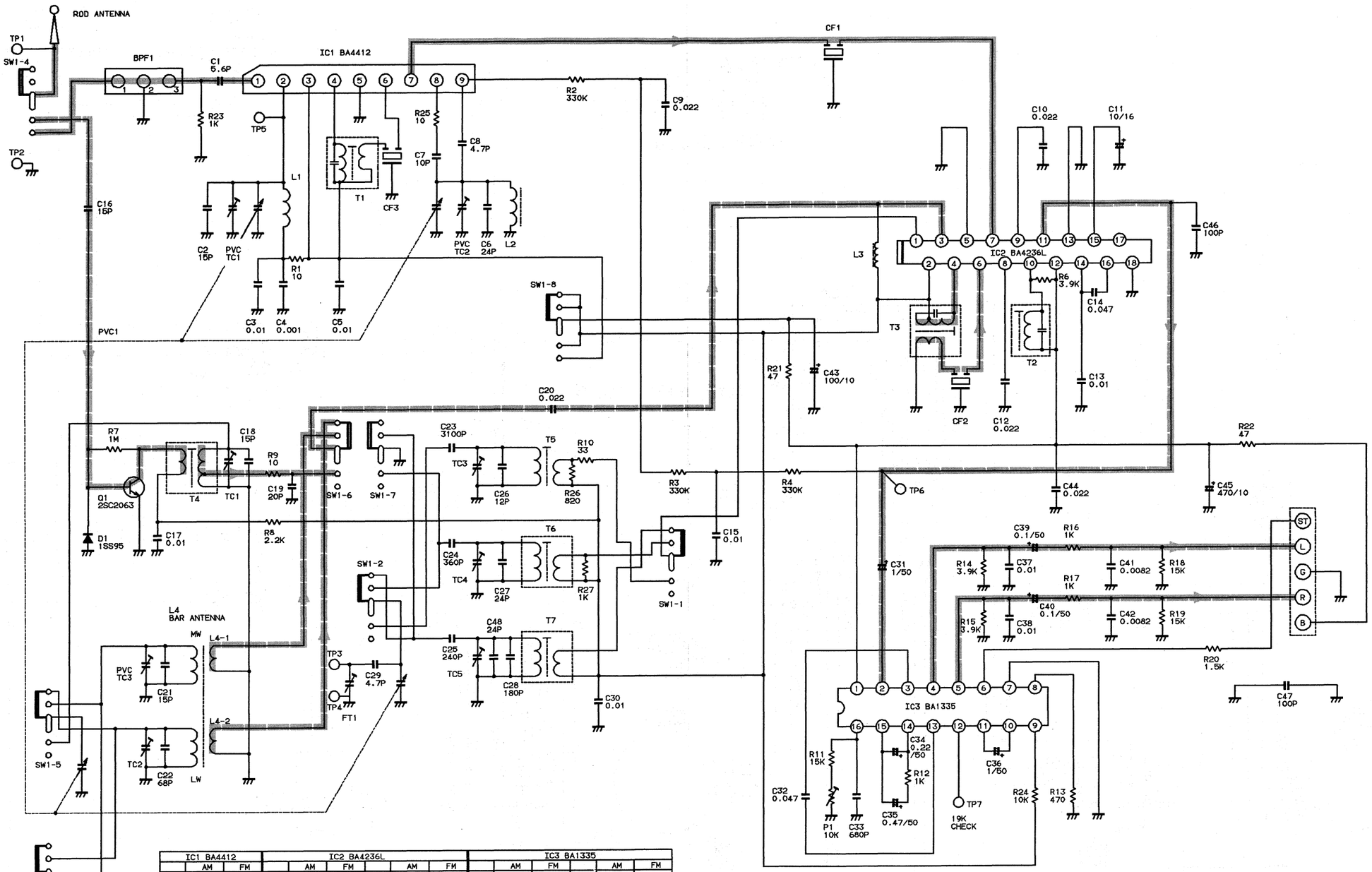
AMPLIFIER P.C.BOARD
(BOTTOM VIEW)



WIRING DIAGRAM



SCHEMATIC DIAGRAM (Tuner)

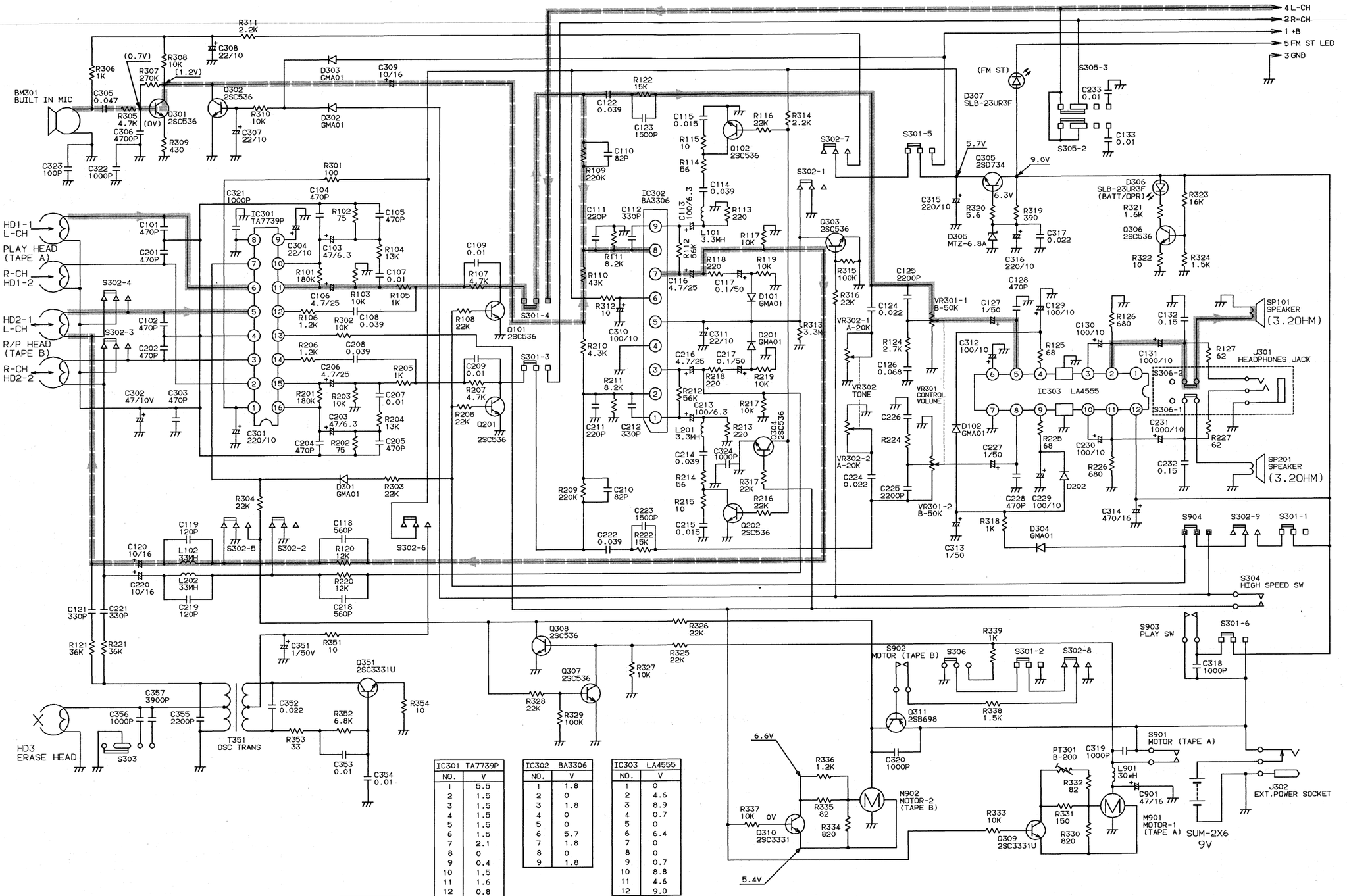


IC1 BA4412			IC2 BA4236L						IC3 BA1335					
	AM	FM		AM	FM		AM	FM		AM	FM		AM	FM
1	0	0.92	1	4.53	0	10	4.84	4.54	1	4.84	4.84	9	2.70	0
2	0	3.69	2	4.54	0	11	2.03	2.12	2	1.80	1.80	10	1.41	1.42
3	0	3.69	3	4.53	0	12	4.84	4.54	3	2.00	2.00	11	1.41	1.42
4	0	3.72	4	4.54	0	13	0	0	4	2.42	2.43	12	0	1.09
5	0	0	5	0	0	14	3.32	3.02	5	2.46	2.46	13	1.42	1.43
6	0	3.69	6	3.91	3.43	15	0	0	6	3.32	3.07	14	1.42	1.43
7	0	2.94	7	3.91	3.43	16	1.34	1.35	7	0	0	15	1.42	1.43
8	0	3.65	8	3.91	3.43	17	0	0	8	0.28	0.28	16	2.80	2.07
9	0	1.95	9	3.91	3.61	18	0	0						

Signal flow of **FM**

Signal flow of **AM**

SCHEMATIC DIAGRAM (Amplifier)



IC301	TA7739P
NO.	V
1	5.5
2	1.5
3	1.5
4	1.5
5	1.5
6	1.5
7	2.1
8	0
9	0.4
10	1.5
11	1.6
12	0.8
13	0.3
14	0
15	1.6
16	1.5

IC302	BA3306
NO.	V
1	1.8
2	0
3	1.8
4	0
5	0
6	5.7
7	1.8
8	0
9	1.8

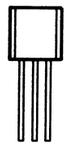
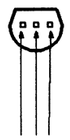
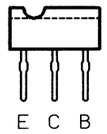
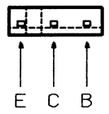
IC303	LA4555
NO.	V
1	0
2	4.6
3	8.9
4	0.7
5	0
6	6.4
7	0
8	0
9	0.7
10	8.8
11	4.6
12	9.0

No.	Name	Position	No.	Name	Position
SW1	Band Switch	LW	S306	Continuous Switch	OFF
S301	Function Switch	TAPE	S901	Motor Switch	OFF
S302	Record/Play Switch	PLAY	S902	Motor Switch	OFF
S303	Beat Switch	1	S903	Play Switch	OFF
S304	High Speed Switch	OFF	S904	Dubbing Switch	OFF
S305	Mode Switch	MONO			

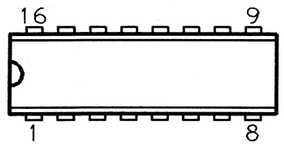
Signal flow of **PLAY**

Signal flow of **RECORD**

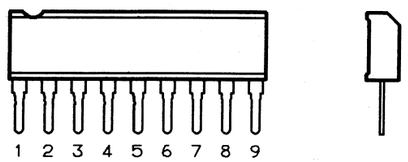
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SB 698 2SC 536 2SC 3331 2SD 734		
2SC 2063		
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

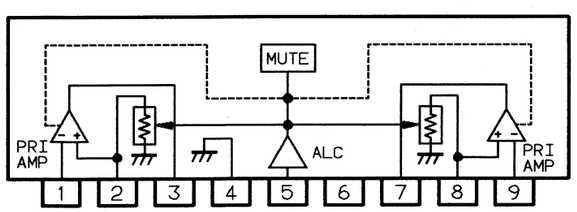
BA1335 TOP VIEW



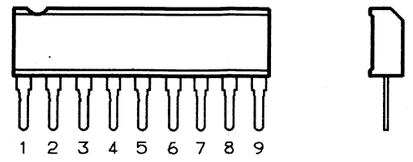
BA3306 FRONT/SIDE VIEWS



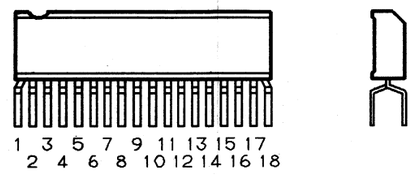
BA3306 BLOCK DIAGRAM



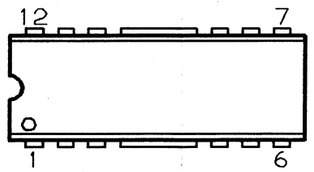
BA4412 FRONT/SIDE VIEWS



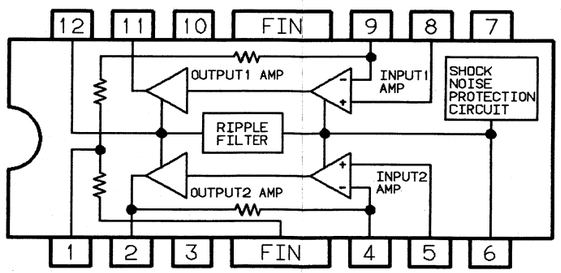
BA4236L FRONT/SIDE VIEWS



LA4555 TOP VIEW



LA4555 BLOCK DIAGRAM



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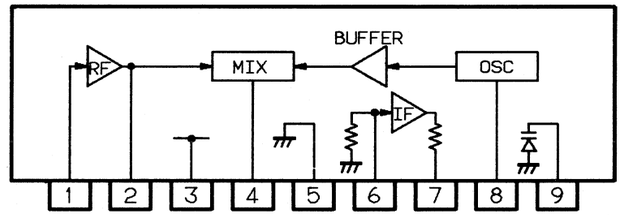
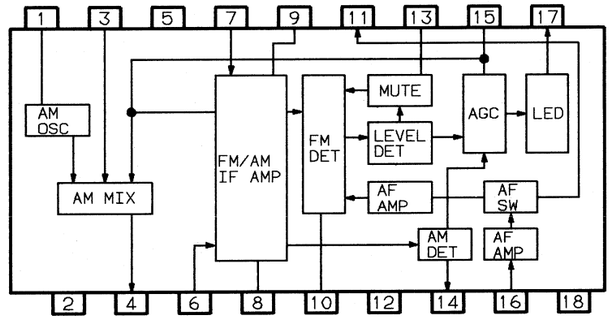


BA4236L BLOCK DIAGRAM



BA1335 BLOCK DIAGRAM